ARCHIVE

for

RATIONAL MECHANICS

and

ANALYSIS

Edited by

C. TRUESDELL

Volume 4



SPRINGER-VERLAG BERLIN-GÖTTINGEN-HEIDELBERG 1959/60



Mechanicam vero duplicem Veteres constituerunt: Rationalem quae per Demonstrationes accurate procedit, & Practicam. Ad practicam spectant Artes omnes Manuales, a quibus utique Mechanica nomen mutuata est. Cum autem Artifices parum accurate operari soleant, fit ut Mechanica omnis a Geometria ita distinguatur, ut quicquid accuratum sit ad Geometriam referatur, quicquid minus accuratum ad Mechanicam. Attamen errores non sunt Artis sed Artificum. Qui minus accurate operatur, imperfectior est Mechanicus, & si quis accuratissime operari posset, hic foret Mechanicus omnium perfectissimus.

La généralité que j'embrasse, au lieu d'éblouïr nos lumieres, nous découvrira plutôt les véritables loix de la Nature dans tout leur éclat, & on y trouvera des raisons encore plus fortes, d'en admirer la beauté & la simplicité.

Ceux qui aiment l'Analyse, verront avec plaisir la Méchanique en devenir une nouvelle branche ...

The ARCHIVE FOR RATIONAL MECHANICS AND ANALYSIS nourishes the discipline of mechanics as a deductive, mathematical science in the classical tradition and promotes pure analysis, particularly in contexts of application. Its purpose is to give rapid and full publication to researches of exceptional moment, depth, and permanence.

Each memoir must meet a standard of rigor set by the best work in its field. Contributions must consist largely in original research; on occasion, an expository paper may be invited.

English, French, German, Italian, and Latin are the languages of the Archive. Authors are urged to write clearly and well, avoiding an excessively condensed or crabbed style.

Manuscripts intended for the Archive should be submitted to an appropriate member of the Editorial Board.

AT V. 4

CONTENTS OF VOLUME 4

ADKINS, J. E., Symmetry Relations for Orthotropic and Transversely Isotropic	Page
Materials	193
BIALY, H., Iterative Behandlung linearer Funktionalgleichungen	166
Снако, N., & J. Meinner, A Characterization of Hypergeometric Functions	89
COLEMAN, B. D., & W. Noll, On the Thermostatics of Continuous Media	97
Ehrmann, H., Iterationsverfahren mit veränderlichen Operatoren	45
Ehrmann, H., Konstruktion und Durchführung von Iterationsverfahren höherer Ordnung	65
Erber, T., Inequalities for Hypergeometric Functions	341
ERICKSEN, J. L., Anisotropic Fluids	231
Genensky, S. M., & R. S. Rivlin, Infinitesimal Plane Strain in a Network of Elastic Cords	30
GÓRSKI, J., The Method of Extremal Points and Dirichlet's Problem in the Space of Two Complex Variables	412
Green, A. E., & R. S. Rivlin, The Mechanics of Non-Linear Materials with Memory. Part III	387
HÖRMANDER, L., Null Solutions of Partial Differential Equations	255
Kanwal, R. P., Uniqueness of Magnetohydrodynamic Flows	335
Kreyszig, E., On Regular and Singular Harmonic Functions of Three Variables	352
Kröner, E., Allgemeine Kontinuumstheorie der Versetzungen und Eigenspannungen	273
Ludford, G. S. S., The Effect of an Aligned Magnetic Field on Oseen Flow of a Conducting Fluid	405
MEIXNER, J., see Chako	
Morgenstern, D., Herleitung der Plattentheorie aus der dreidimensionalen Elastizitätstheorie	145
Noll, W., see Coleman	
OLESIAK, Z., & I. N. SNEDDON, The Distribution of Thermal Stress in an Infinite Elastic Solid Containing a Penny-Shaped Crack	238
Ostrowski, A. M., On the Convergence of the Rayleigh Quotient Iteration for the Computation of Characteristic Roots and Vectors. VI (Usual Raleigh Quotient for Nonlinear Elementary Divisors)	153

VI Contents

PIPKIN, A. C., & R. S. RIVLIN, The Formulation of Constitutive Equations in	Page
Continuum Physics. I	
RIVLIN, R. S., The Formulation of Constitutive Equations in Continuum Physics. II	
RIVLIN, R. S., see GENENSKY	
RIVLIN, R. S., see Green	
RIVLIN, R. S., see PIPKIN	
RIVLIN, R. S., see Spencer	
Schröder, J., Anwendung von Fixpunktsätzen bei der numerischen Behandlung nichtlinearer Gleichungen in halbgeordneten Räumen	177
Sneddon, I. N., see Olesiak	
Spencer, A. J. M., & R. S. Rivlin, Further Results in the Theory of Matrix Polynomials	214
TÖRNIG, W., Zur numerischen Behandlung von Anfangswertproblemen partieller hyperbolischer Differentialgleichungen zweiter Ordnung in zwei unabhängigen Veränderlichen. I. Das charakteristische Anfangswertproblem	428
TÖRNIG, W., Zur numerischen Behandlung von Anfangswertproblemen partieller hyperbolischer Differentialgleichungen zweiter Ordnung in zwei unabhängigen Veränderlichen. II. Das Cauchy-Problem	
TRUESDELL, C., Invariant and Complete Stress Functions for General Continua	1
Wolfowitz, J., Simultaneous Channels	371